"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

ZELYAKH, E.V.

CIRCUITS

"Electric Filters with Resonators of Synthetic Crystals" by Ya. I. Velikin and E. V. Zelyakh, Elektrosvyaz', No 11, November 1957, pp 89-100.

Somewhat obsolete article (delivered at the First All-Union Conference on Piezoelectricity on November 27, 1952, on the development of electric filters for 12-channel carrier telephone system, in which synthetic crystals replace the quartz in the piezoelectric resonators.

Card: 1/1

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SOV/106-58-9-7/17

AUTHOR: Zelyakh, E.V.

TITLE: The Station-A Crystal Blocking Filter of a 12-Channel High-Frequency Telephony System (Zagrazhdayushchiy kvartsevyy fil'tr stantsii A 12-kanal'noy sistemy vysokochastotnogo telefonirovaniya)

PERIODICAL: Elektrosvyaz', 1958, Nr 9, pp 44 - 50 (USSR)

ABSTRACT: The purpose of this filter is to suppress the residual leakage of carriers at 60, 64 .... 108 kc/s which come through from the modulators of the individual channels. A simplified circuit diagram of the filter is shown in Fig 1. A typical response curve is shown in Fig 2. The lower scale of this figure shows in more detail the shape of the responses at certain frequencies. In spite of the importance of this filter in a multi-channel system the literature on it is extremely limited. The purpose of this paper is to provide an analysis and a method of design. Figs 3 and 4 show the familiar equivalent circuits for a crystal element and equations (7) and (8) give alternative forms of the expression for the ratio of the two resonant frequencies of the crystal. An

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SOV/106-58-9-7/17

The Station-A Crystal Blocking Filter of a 12-Channel High-Frequency Telephony System

important parameter here is the ratio of the "surface" to "internal" capacitances of the crystal. For plates cut at an angle of -18.5^{o} the parameter has a value of 140 and for a $+5^{o}$ cut it has a value of 125. At frequencies sufficiently remote from the carrier frequency, i.e. lying in the pass-bands of the channels, the circuit of Fig 5 is a good representation of the filter action. It will be seen that it is in effect a 2-section m-derived filter. Equation (10) gives the circuit values in terms of cut-off frequency and m . Equation (15) is an expression for the attenuation due to the filter and (16) is its particular value at the cut-off frequency. In the neighbourhood of the carrier frequencies where the attenuation is much greater Fig 6 is a better approximation to the circuit and this may be further reduced to Fig 7. The additional circuit attenuation due to the rapid change in crystal admittance is given by (17), the constituent parts of which are defined in (19) - (22). The attenuation at the carrier

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The Station-A Crystal Blocking Filter of a 12-Channel High-Frequency Telephony System SOV/106-58-9-7/17

frequency itself is given by (28). The design of the crystal element may be undertaken from (39) for the inductance, (40) for the resistance, and (41) for the series capacitance. The work was done by A.D. Fedorov under the guidance of Ya.I. Velikin. There are 7 figures and 4 references, all Soviet.

ASSOCIATION: Leningradskoye otdeleniye nauchno-issledovatel'skogo instituta svyazi Ministerstva svyazi (Leningrad Division of the Scientific Research Institute of Communications of the Ministry of Communications)

SUBMITTED: April 21, 1958

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

ZELYAKH, E. V.

Н. В. Сухалев

Полупроводниковые схемы в системах уплотнения внутрирайонной связи.

[illegible] 2 часов)

Н. К. Алимфов

Суммирование нелинейных помех многоканальных систем на магистралях большой протяженности.

Н. В. Шалугин

Экспериментальное и теоретическое исследование закона сложения линейных шумов в канале кабельной магистрали большой протяженности.

А. М. Меккель

Анализ одной из схем комбинированной обратной связи в многоканальном усилителе.

Н. К. Струков

О влиянии частотных нестабильностей на каналы тонального телеграфирования с частотной модуляцией.

11 июня

(с 10 до 16 часов)

П. К. Акульшин

Влияние через третьи цепи, образованные конструктивными неоднородностями линии.

А. Д. Алексеенко

Влияние радиостанций на цепи воздушных линий связи.

И. И. Волков

Зависимость вторичных параметров цепей от схемы скрещивания.

М. М. Михайлов,
Л. Д. Разумов

Организация связи по ВЧ каналам воздушных линий связи, проложенных в непосредственной близости от контактных сетей электрифицированных ж. д. переменного тока.

11 июня

(с 18 до 22 часов)

Э. В. Зелях

О выборе характеристических параметров симметричных четырехполюсников, в частности содержащих отрицательные сопротивления.

report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNORiE), Moscow, 8-12 June, 1959

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20406

9.3240 (2301, 2901, 2902, 2104)

S/109/60/005/012/004/035
E192/E482

AUTHORS: Zelyakh, E.V. and Lur'ye, B.Ya.

TITLE: A Method for the Physical Realization of an Ideal Power Converter

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol.5, No.12, pp.1895-1901

TEXT: The conception of an ideal power converter as a circuit element was introduced by Zelyakh in 1957 (Ref.1). It is a two-port with matrix

$$\begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix} = \begin{bmatrix} \frac{1}{K} & 0 \\ 0 & \frac{1}{K} \end{bmatrix};$$ (a)

Connected in cascade with other two-ports it increases the signal by a factor of K in one direction and by 1/K in the other, independently of the input impedances of the two-ports on either side. Its input impedance is identical with that of the load connected across the output terminals. It was shown (Ref.2) that

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any irreversible two-port can be reduced to a reversible two-port in cascade with an ideal power converter. The physical realization of ideal power converters is the subject of the present article. Analysis shows that the circuit of Fig.1 will behave as an ideal power converter under certain conditions. The matrix of Fig.1b is

$$[a] = \begin{bmatrix} \frac{1}{\mu - s} & 0 \\ 0 & \frac{s}{\mu - s} \end{bmatrix}.$$

(b)

With $s = 1$ this is the matrix of the ideal power converter with $\mu - 1 = K$. With $s \neq 1$ the circuit is equivalent to the cascade connection of an ideal converter and an ideal transformer." For K to be a real quantity, it is necessary that μ, Z_1, sZ_1, Z_2 and Z_3 be real and positive. Stable and real μ over a working bandwidth requires the use of a negative feedback amplifier. If the amplifier is not rigorously unilateral, back-transmission of the signal from the output to the input terminals may be compensated by adjustment of Z_2 and Z_3. A pentode circuit

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A Method for the Physical ...

modelling Fig.1b is given in Fig.3. The ratio of input to output impedances is very close to unity below 1 MΩ. The authors list several applications in measurement techniques. The most interesting application is as a negative-resistance amplifier (Fig.4 and 5). Bridging the converter (Fig.4) gives a short-circuit-stable negative-resistance amplifier, putting the impedance in the common lead (Fig.5) gives an open-circuit-stable amplifier. The article closes with stability considerations. There are 5 figures, 1 table and 5 references: 4 Soviet and 1 non-Soviet.

SUBMITTED: May 7, 1960

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Fig.1.

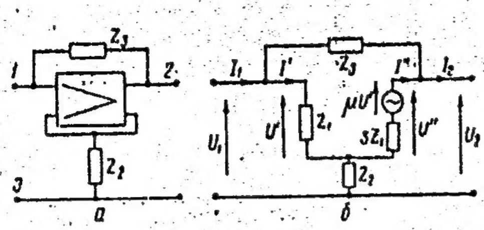

Рис. 1. Схема, при определенных условиях эквивалентная идеальному преобразователю мощности

Fig.3.

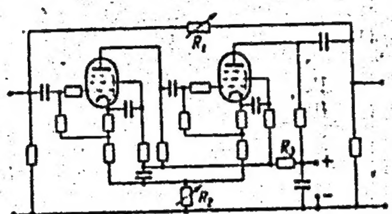

Рис. 3. Принципиальная схема устройства, обладающего свойствами идеального преобразователя мощности

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A Method for the Physical ...

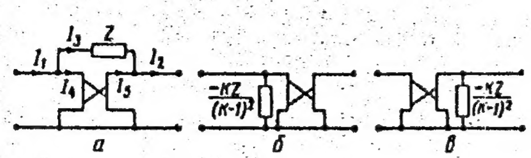

Fig.4. Рис. 4. Идеальный преобразователь мощности как конвертор отрицательных сопротивлений, устойчивых при коротком замыкании

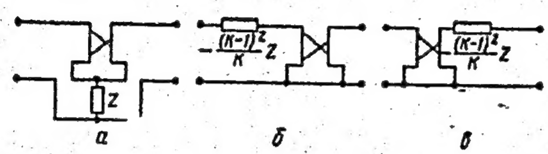

Fig.5. Рис. 5. Идеальный преобразователь мощности как конвертор отрицательных сопротивлений, устойчивых при холостом ходе

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21199
S/106/60/000/007/002/00?/XX
A189/A133

9.3210 (2902, 1031, 1132)

AUTHOR: Zelyakh, E. V.

TITLE: On the stability analysis of tube and transistor circuits

PERIODICAL: Elektrosvyaz', no. 7, 1960, 47-59

TEXT: The author describes a method of finding out the characteristic equation of a linear electric circuit, which is required for the circuit stability analysis. The method consists in the representation of the circuit as a quadripole. The purpose of this work is to give a theoretical basis of this method, the foundation for which was laid by the author already in 1929 [Ref. 5: Zelyakh, E. V., "Raschet transformatornykh fil'trov" (Calculation of Transformer Filters) (graduation thesis), LETI, 1929]. Theoretically, the method is based on the following five theorems. Theorem I: If a linear electric circuit is reduced to a quadripole with short-circuited poles at both ends, then its characteristic equation has the form

$$|z| = 0 \qquad (1)$$

where $|z|$ = determinant

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On the stability analysis of...

$$|z| = \begin{vmatrix} z_{11} & z_{12} \\ z_{21} & z_{22} \end{vmatrix} \quad (2)$$

formed from the equation factors of the quadripole

$$\left.\begin{aligned} \dot{U}_1 &= z_{11}\dot{I}_1 + z_{12}\dot{I}_2 \\ \dot{U}_2 &= z_{21}\dot{I}_1 + z_{22}\dot{I}_2 \end{aligned}\right\} . \quad (3)$$

$\dot{U}_1$ and $\dot{I}_1$ represent the voltage and current in the left branch and $\dot{U}_2$ and $\dot{I}_2$ - in the right branch of the quadripole. Theorem II: If an electric linear circuit is reduced to a quadripole with opened poles, then its characteristic equation has the form

$$|y| = 0 \quad (6)$$

where $|y|$ = determinant

$$|y| = \begin{vmatrix} y_{11} & y_{12} \\ y_{21} & y_{22} \end{vmatrix} \quad (7)$$

formed from the equation factors of the quadripole

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$$\left.\begin{aligned}\dot{I}_1 &= y_{11}\dot{U}_1 + y_{12}\dot{U}_2\\ \dot{I}_2 &= y_{21}\dot{U}_1 + y_{22}\dot{U}_2\end{aligned}\right\} . \qquad (8)$$

Theorem III: If an electric linear circuit is reduced to a quadripole having short-circuited poles at the left branch and open poles at the right branch, then its characteristic equation has the form

$$|d| = 0 \qquad (9)$$

where $|d|$ = determinant

$$|d| = \begin{vmatrix} d_{11} & d_{12} \\ d_{21} & d_{22} \end{vmatrix} \qquad (10)$$

formed from the equation factors of the quadripole

$$\left.\begin{aligned}\dot{U}_1 &= d_{11}\dot{U}_2 + d_{12}\dot{I}_1\\ \dot{I}_2 &= d_{21}\dot{U}_2 + d_{22}\dot{I}_1\end{aligned}\right\} . \qquad (11)$$

Theorem IV: If an electric linear circuit is reduced to a quadripole having short-circuited poles at the right branch and opened poles at the left branch, then its characteristic equation has the form

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A189/A133

On the stability analysis of...

$$|f| = 0 \tag{14}$$

where f = determinant

$$|f| = \begin{vmatrix} f_{11} & f_{12} \\ f_{21} & f_{22} \end{vmatrix} \tag{15}$$

formed from the equation factors of the quadripole

$$\left.\begin{aligned} \dot{U}_2 &= f_{11}\dot{U}_1 + f_{12}\dot{I}_2 \\ \dot{I}_1 &= f_{12}\dot{U}_1 + f_{22}\dot{I}_2 \end{aligned}\right\} . \tag{16}$$

Theorem V: If an electric linear circuit is reduced to a ring circuit, then its characteristic equation has the form

$$a_{11} + a_{22} = |a| + 1 \tag{17}$$

where $|a|$ = determinant

$$|a| = \begin{vmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{vmatrix} \tag{18}$$

formed from the equation factors of the quadripole

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$$\left.\begin{aligned}\dot{U}_1 &= a_{11}\dot{U}_2 + a_{12}\dot{I}_2 \\ \dot{I}_1 &= a_{21}\dot{U}_2 + a_{22}\dot{I}_2\end{aligned}\right\} . \qquad (19)$$

Proofs for the above mentioned theorems are given. Tables list the characteristic equations of the quadripoles for the different connections of its poles, the characteristic equations for some circuits containing an ideal tube or semiconductor period and characteristic equations for some ring circuits containing a tube, or a transistor, connected to a reversible quadripole. Examples of practical application of this method are given. Appendix 1 gives matrices of an electron tube connected as a quadripole. Appendix 2 gives matrices for a transistor in an equivalent T-circuit with a common base. There are 10 figures, 5 tables, and 15 references: 13 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: 1) Oakes, "Analysis of junction transistor audio oscillator circuits", Proc. IRE, vol. 42, no. 8, 1954. 2) Honnell, "The generalized transmission matrix stability criterion", Trans. AIEE, vol. 70, 1951.

SUBMITTED: March 10, 1960.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

89829

S/106/60/000/011/004/010
A055/A033

9,2550

AUTHORS: Velikin, Ya.I., Gel'mont, Z.Ya., and Zelyakh, E.V.

TITLE: A Piezoelectric Band-Elimination Filter Circuit.

PERIODICAL: Elektrosvyaz', 1960, No.11, pp. 34-39

TEXT: The band-elimination quartz filters have usually a comparatively low impedance in the region of the suppressed frequencies. In some practical cases, it is sometimes necessary, however, for the filter to have a considerable impedance in the suppressed band. Two such filter circuits, containing one and two piezoelectric resonators respectively (see Fig. 1a and 1b) are described in the present article. These filter circuits have really two suppression bands: a wide one and a narrow one. The narrow band, in the region of the antiresonance frequency of the resonator (shunted by a capacitance), is the principal one and is used for the suppression of currents of given frequencies. Its width is somewhat larger in the circuit containing two resonators. Using equivalent circuits for his discussion, the author calculates the effective attenuation in the suppression band. He establishes first a general formula for the case of the filter circuit con-

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A055/A033

A Piezoelectric Band-Elimination Filter Circuit.

taining two resonators, and then applies this formula to the filter circuit with one resonator. He then works out a corresponding formula for the effective attenuation in the transmission band of the filters. Formulae are also given allowing to calculate the input impedance of the filter circuit (containing two resonators) in the case of the suppressed band and in the case of the pass-band (simplified approximate formulae being used in this latter case). At the end of the article, some general recommendations are given as to the calculation of the filter circuits and the choice of the piezoelectric resonators. There are 7 figures and 6 references: 5 Soviet and 1 non-Soviet.

SUBMITTED: May 3, 1960

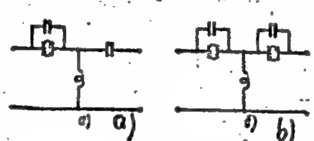

Рис. 1

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82865
S/108/60/015/008/002/006
B012/B067

9.3240

AUTHOR: Zelyakh, E. V., Member of the Society

TITLE: A New Theory of the Autonomous Four-pole and Its Application to an Amplifier With Distributed Amplification

PERIODICAL: Radiotekhnika, 1960, Vol. 15, No. 8, pp. 13-24

TEXT: The fundamentals of the present paper were outlined on April 26, 1954, at the Scientific-technical Conference of the Leningradskiy elektrotekhnicheskiy institut svyazi im. M. A. Bonch-Bruyevicha (Leningrad Electrotechnical Institute of Communications imeni M. A. Bonch-Bruyevich) and on May 13, 1958, at the All-Union Scientific Session of the NTORiE im. A. S. Popova (NTORiE imeni A. S. Popov) held in Moscow on the occasion of the Day of Radio. In his earlier papers (Refs. 1,2) the author developed the theory of an autonomous four-pole. A four-pole containing independent energy sources is termed an autonomous four-pole. Such a four-pole independently produces (autonomous) voltages and currents at its external terminals. The theory is based on the use of no-load

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A New Theory of the Autonomous Four-pole and Its Application to an Amplifier With Distributed Amplification

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B012/B067

voltages and short-circuit currents (measured at the terminals of the four-pole switched off from the current circuit) as autonomous parameters. Together with the coefficients of the four-pole equations these parameters allow the calculation of various regular four-pole systems if there are no restrictions concerning the selection of these systems. In practice, however, certain restrictions are imposed for simplifying the calculation in various systems. In the paper (Ref. 3) such a calculation was made for nonautonomous four-poles. Here, a similar system of parameters is given for autonomous four-poles. Only autonomous circuits whose "body" is a symmetrical four-pole are dealt with. The "body" of an autonomous four-pole is the nonautonomous four-pole which is obtained from the corresponding autonomous four-pole if in the latter the control voltages and the control currents of all independent sources are assumed to vanish. New parameters are introduced for the autonomous four-pole which are termed characteristic voltages and currents. The author established the relation between the latter and the other autonomous parameters. In the following, the theory of a cascade circuit

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A New Theory of the Autonomous Four-pole and Its Application to an Amplifier With Distributed Amplification

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B012/B067

of accordant autonomous four-poles with symmetrical bodies is set up. Formulas for calculating the voltages and currents at the current circuit terminals are derived for any loads. Tables 1-5 show formulas for the characteristic voltages and currents of some typical four-poles. To illustrate the theory explained it is applied to analyzing an amplifier with distributed amplification (Fig. 14). Formulas for the amplification coefficient of the amplifier are derived taking account of the mismatch at both ends of the grid- and anode current circuit. It is shown that the analysis made on the basis of the theory of autonomous characteristic parameters is simpler and more illustrative than the analysis of the amplifier of papers (Refs. 5,6), and that more general results are obtained. It is pointed out that the theory presented here may also be used for analysing receiving antennas, lines with noises, etc. There are 16 figures, 5 tables, and 8 references: 6 Soviet and 2 US.

SUBMITTED: June 12, 1959

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30136
S/194/61/000/007/061/079
D201/D305

9.3230 (1132,1159)

AUTHOR: Zelyakh, E.V.

TITLE: Signs of the characteristic parameters of symmetrical four-poles containing negative resistances

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 7, 1961, 9, abstract 7 I72 (V sb. 100 let so dnya rozhd. A.S. Popova, M., AN SSSR, 1960, 160-170)

TEXT: The characteristic parameters of symmetrical fourpoles (F) (the characteristic impedance Z_c and the char. transmission constant g_c) are expressed by radicals, whose choice of signs is of importance both in theory and practice. The present work is an endeavor to make this problem completely clear. By considering the known F equations

$$\dot{U}_1 = \mathrm{ch}\, g_c\, U_2 + Z_c\, \mathrm{sh}\, g_c\, \dot{I}_2$$

$$\dot{I}_1 = \frac{1}{Z_c}\, \mathrm{sh}\, g_c\, \dot{U}_2 + \mathrm{ch}\, g_c\, \dot{I}_2$$

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Signs of the characteristic...

it is shown that the sign of one of the characteristic parameters is closely related to that of the other. The latter of the signs may be determined either analytically or graphically. In the analytical determination of signs of the charact. parameters, formulae are used which relate to each other Z_c and g_c and any other single valued parameters of F_1 e.g.

$$\frac{Z_c}{\text{th } g_c} = Z_{x.x}; \; Z_c \text{ th } g_c = Z_{k.3}$$

The graphical sign determination is based on topological properties of $Z_{x.x}$ and $Z_{k.3}$ as formulated by Feldtkeller. Several theorems based on the theory introduced above, are given. These theorems make it possible to determine directly for many F the signs of charact. parameters. Examples of application of the theory are given. 5 references. [Abstracter's note: Complete translation]

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9.2186 (1063, 1159)
9.3230 (1132, 1040)

29587
S/108/61/016/011/003/007
D201/D304

AUTHORS: Velikin, Ya.I., Gel'mont, Z.Ya., and Zelakh E.V., Members of the Society

TITLE: Narrow-band lattice crystal filters

PERIODICAL: Radiotekhnika, v. 16, no. 11, 1961, 26 - 33

TEXT: In the present article design formulae are derived for lattice filters consisting of a piezoelectric crystal and a capacitor and forming a single, two-, three and four-section networks. The analysis of the filters is made using basic Π- and T-sections, as shown in Figs. 1a and 2a. Although design formulae for the above configuration are given in literature, for narrow pass-band filters, in which the ratio of the pass-band to its center frequency is smaller than e.g. 0.05, simpler approximate formulae may be used obtained by the method similar to that given by E.V. Zelakh (Ref. 6: Metod rascheta ekvivalentnykh skhem (Method of Designing Equivalent Circuits), Nauchno-tekhn. sb. po elektrosvyazi Leningr. in-ta svyazi no. 6, 1946). These formulae are as follows: for Π-section

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29587
S/108/61/016/011/003/007
D201/D304

Narrow-band lattice crystal filters

$$C_1 \approx \frac{1 - m^2}{4\pi\, m f_a R_{nom}} \quad (1)$$

$$C_2 \approx \frac{m}{2\pi\, f_a R_{nom}} \quad (2)$$

$$C_q \approx \frac{\Delta}{2\pi\, m f_a^2\, R_{nom}}, \qquad L_q \approx \frac{m R_{nom}}{2\pi \Delta};$$

for T-section

$$C_1 \approx \frac{m}{2\pi\, f_a R_{nom}}, \qquad C_2 \approx \frac{[illegible]}{\pi (m^2 - 1)\, f_a R_{nom}},$$

$$C_q \approx \frac{2m^3\, \Delta}{\pi (m^2 - 1)^2 f_a R_{nom}}, \qquad L_q \approx \frac{(m^2 - 1)^2\, R_{nom}}{8\pi\, m^3 \Delta}.$$

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Narrow-band lattice crystal filters

For both cases

$$m = \sqrt{\frac{f_2^2 - f_\infty^2}{f_1^2 - f_\infty^2}} \qquad (3)$$

and

$$\Delta = f_2 - f_1, \; f_a = \frac{1}{2}(f_1 + f_2) \qquad (4)$$

where f_1 and f_2 cut-off frequencies, f_∞ - frequences of the attenuation band, R_{nom} - characteristic filter impedance at freqeuncy f_a. For narrow-band filters, as frequencies near f_a

$$m \approx \sqrt{\frac{f_2 - f_\infty}{f_1 - f_\infty}} \qquad (5)$$

may be assumed and hence, introducing

$$\Delta_\infty = 2(f_\infty - f_a), \quad t = \frac{\Delta_\infty}{\Delta} \qquad (6)$$

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the approximate expression for m is obtained as

$$m \approx \sqrt{\frac{t - 1}{t + 1}}, \tag{7}$$

which is the generalized equation (does not contain frequency). The attenuation of the single section filter is derived as

$$N \approx \frac{1}{2}\sqrt{t^2 - 1}\ \frac{\frac{1}{\alpha} - \alpha + (\frac{1}{\alpha} + \alpha)\eta}{\eta - t} \tag{22}$$

where $\alpha = \frac{R_o}{R_{nom}}$, and η given by

$$\eta = \frac{f - f_a}{\frac{1}{2}\Delta} \tag{19}$$

- the normalized frequency (Ref. 6: Op. cit.). For the two-section filter the anntenuation is derived as

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Narrow-band lattice crystal filters

$$N \approx \sqrt{t^2 - 1}\, \frac{[\frac{1}{\alpha} - \alpha + (\frac{1}{\alpha} + \alpha)\eta](\eta t - 1)}{(\eta - t)^2}, \qquad (27)$$

for three-section

$$N \approx \frac{1}{2}\sqrt{t^2 - 1}\,[\frac{1}{\alpha} - \alpha + (\frac{1}{\alpha} + \alpha)\eta]\, \frac{4(\eta t - 1)^2 - (t - \eta)^2}{(t - \eta)^3} \qquad (35)$$

and four-section as

$$N \approx 2\sqrt{t^2 - 1}\,[\frac{1}{\alpha} - \alpha + (\alpha + \frac{1}{\alpha})\eta](\eta t - 1)\, \frac{2(\eta t - 1)^2 - (\eta - t)^2}{(\eta - t)^4};$$

Each of tehm simplifies according to the values of load and the respectiv. values of η and t. The above filter circuits may, in particular be used for crystal filters at frequencies above 1 mc/s, with transverse oscillating crystals of AT and BT cut. Experimental two- and three-Π-section filters operating at the center pass-band frequency of 1364 kc/s had a pass band of 800 c/s. There are 8 figures and 7 references: 4 Soviet-bloc and 3 non-Soviet-bloc. The

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Narrow-band lattice crystal filters 29587 S/108/61/016/011/003/007
D201/D304

reference to the English-language publication reads as follows: R. A. Sykes, IRE National Convention; part 2, 1958.

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi im. A.S. Popova (Scientific and Technical Communication im. A.S. Popov) [Abstractor's note: Name of Association taken from 1st page of journal]

SUBMITTED: April 29, 1960 (initially)
July 7, 1961 (after revision)

Fig. 1.

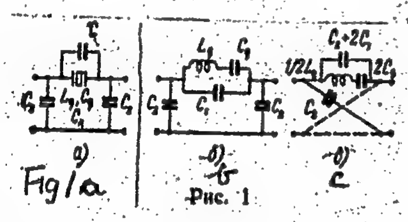
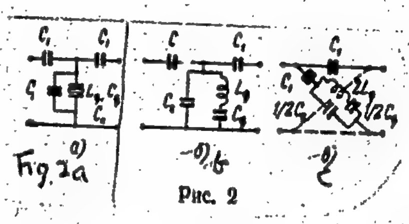


Fig. 2.



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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

S/106/62/000/002/008/010
A055/A101

9,2186

AUTHORS: Velikin, Ya. I., Zelyakh, E. V., Ivanova, A. I.

TITLE: Single-mesh narrow-band magnetostrictive filters

PERIODICAL: Elektrosvyaz', no. 2, 1962, 51 - 59

TEXT: In the present article are described some of the results of the study of magnetostrictive ferrite-core resonators and of filters composed of such resonators, undertaken by the authors. Only single-mesh narrow-band filters are examined in this article, by the analytical method already described by two of the authors (Zelyakh and Velikin, Radiotekhnika, no. 7 - 8, 1946). The schematic diagram of these filters is shown in Fig. 1a, Fig. 1b being its equivalent circuit. Neglecting, as a first approximation, the losses in the filter elements, the authors derive expressions permitting the calculation of the filter elements L_{01}, L_{02}, L_1, L_2, C_1 and C_2 (or the elements L_0, L, C_1 and C_2 when $L_1 = L_2 = L$ and $L_{01} = L_{02} = L_0$). They next calculate the components of the magnetostrictive resonator impedance $Z = R + iX$. Formulae are deduced, first for R_1 and X_1 and then for R_2 and X_2, i.e. for the resistance and reactance of the resonators forming the first and the second arm of the filter, respectively. Ex-

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perimental checks proved that the values of the resistances and reactances calculated with the aid of these formulae are sufficiently correct. In the third chapter of the article, the authors determine the working attenuation of the examined filters in two cases: 1) without taking into account the losses in the resonators, 2) account taken of these losses. The results of an experimental investigation of some magnetostrictive filters designed according to the described method are reproduced at the end of the article. There are 10 figures and 5 references: 4 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: Burgt. Piezomagnetic ferrites. Electronic Technology, 1960, v. 37, no. 9. The Soviet authors or scientists mentioned in the article are: S. S. Kogan, N. D. Bosyy.

SUBMITTED: June 23, 1961

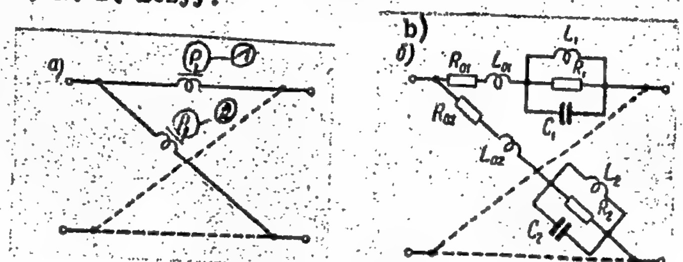

Figure 1.
Legend 1 - Res_1
2 - Res_2

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A055/A101

9.2186

AUTHORS: Velikin, Ya.I.; Zelyakh, E.V.; Ivanova, A.I.

TITLE: Rejection magnetostrictive filters

PERIODICAL: Elektrosvyaz', no. 4, 1962, 48 - 54

TEXT: A method for calculating bridge-type rejection filters consisting of magnetostrictive resonators and condensers is described. The rejection magnetostrictive filter is shown schematically in Figure 1, the resonator being replaced by its equivalent circuit (the losses in the filter elements are neglected). The impedances of the arms are:

$$Z_1 = i\, 2\pi f L_0 \frac{f_2^2 - f^2}{f_1^2 - f^2}; \quad Z_2 = \frac{1}{i\, 2\pi f C_2}, \tag{1}$$

where f_1 and f_2 are, respectively, the antiresonant and the resonant frequency of the resonator. The filter characteristic impedances Z_{c0} and $Z_{c\infty}$ (at $f = 0$ and $f \to \infty$, respectively) being but little different, the rated impedance of the filter is taken equal to

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$$Z_m = \sqrt{\frac{L_0}{C_2}} = \frac{R_0}{\alpha}, \tag{3}$$

R_0 being the load resistance and α the matching coefficient. The graphs showing the frequency-dependence of Z_1, Z_2, b_c (characteristic attenuation) and Z_c reveal that the examined circuit is a rejection filter whose characteristic rejection band is situated between the frequencies f_1 and f_2. Within this band (at f_∞), occurs the attenuation pole, f_∞ being deduced from formula:

$$f_\infty^2 (f_2^2 - f_\infty^2) = F_0^2 (f_\infty^2 - f_1^2), \tag{4}$$

where

$$F_0 = \frac{1}{2\pi\sqrt{L_0 C_2}}. \tag{5}$$

The formulae permitting the calculation of the filter elements are:

$$L_0 = \frac{Z_m}{2\pi F_0}, \quad L_1 \approx L_0 \frac{2\Delta}{f_1}, \quad C_1 = \frac{1}{4\pi^2 f_1^2 L_1}, \quad C_2 = \frac{1}{2\pi F_0 Z_m}, \tag{6}$$

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$$F_0 = f_\infty \sqrt{\frac{f_2^2 - f_\infty^2}{f_\infty^2 - f_1^2}} \approx f_\infty \sqrt{\frac{f_2 - f_\infty}{f_\infty - f_1}}. \qquad (7)$$

$\Delta = f_2 - f_1$ being the width of the characteristic rejection band. The maximum width of the rejection band is:

$$\Delta_{max} = \frac{1}{2} K^2 f_1 \qquad (8)$$

K being the electromechanical coupling coefficient. The author next considers the case when two rejection bands are necessary (two series-connected magnetostrictive resonators being used) and deduces a formula giving Δ_{max} for this case. He calculates then the working attenuation of the single-mesh filter. This attenuation is:

$$b_{work} = \ln \sqrt{1 + \frac{1 - t^2}{4} \frac{\left[(\alpha - \frac{1}{\alpha})\eta + \alpha + \frac{1}{\alpha}\right]^2}{(\eta - t)^2}}, \qquad (16)$$

where $t = \frac{\Delta_\infty}{\Delta}$, $\Delta_\infty = 2(f_\infty - f_a)$, $f_a = \frac{1}{2}(f_1 + f_2)$, $\eta = \frac{2(f - f_a)}{\Delta}$. An

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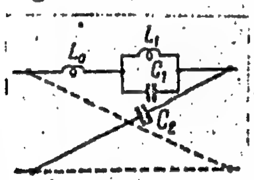
analogous formula is also deduced for the working attenuation of the two-mesh filter. Some results of a practical application of the above formulae are given at the end of the article. The Soviet personalities mentioned in the article are: D.G. Yatsenko, T.M. Novikova, N.D. Bosyy. There are 9 figures and 4 references: 3 Soviet-bloc and 1 non-Soviet-bloc.

SUBMITTED: October 28, 1961

Figure 1b.



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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

ZELYAKH, E.V.

Use of equivalent transformations in the calculation of electrical networks. Radiotekhnika 17 no.9:3-6 S '62. (MIRA 15:9)

1. Deystvitel'nyy chlen Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi imeni A.S.Popova.
(Electric networks) (Equivalent circuits)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

VELIKIN, Ya.I.; ZELYAKH, E.V.; IVANOVA, A.I.

Wide-band magnetostrictive filters. Elektrosviaz' 17 no.10:1-9 0 '63. (MIRA 17:1)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

ZELYAKH, E.V.; KISEL', V.A.

Canonical schematics of two-terminal circuits consisting of two-terminal networks of two forms. Radiotekhnika 20 no.7:1-8 Jl '65. (MIRA 18:8)

1. Deystvitel'nyye chleny Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi imeni Popova.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

L 35854-66 EWT(1)

ACC NR: AP6010785 SOURCE CODE: UR/0106/66/000/002/0001/0008

33
B

AUTHOR: Velikin, Ya. I.; Zelyakh, E. V.; Ivanova, A. I.

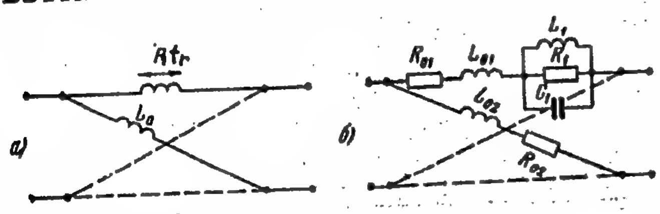
ORG: none

TITLE: Narrow-band magnetostriction filters 15

SOURCE: Elektrosvyaz', no. 2, 1966, 1-8

TOPIC TAGS: electric filter, magnetostriction filter

ABSTRACT: A method is developed for calculating single- and two-section magnetostriction filters (MF) that have a bridge circuit and include one two-winding magnetostriction resonator and one doubly-wound inductance coil (see figure). Theoretical plots of characteristic impedance and attenuation of MF arms are shown. Formulas for the effective attenuation of single- and two-section MF's



Actual Equivalent
Magnetostriction-filter circuit

UDC: 621.372.542.22

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

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ACC NR: AP6010785

are developed. A 78-kc experimental two-section filter was tested; its attenuation characteristics are very close to those estimated by the authors' formulas. Orig. art. has: 10 figures, 30 formulas, and 1 table.

SUB CODE: 09 / SUBM DATE: 08Jul65 / ORIG REF: 005

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

ZELYAK, V.L.

Structural adaptation of the arterial bed in the esophagus under experimental conditions. Arkh.anat., gist. i embr. 47 no.10:56-61 O '64. (MIRA 18:6)

1. Kafedra normal'noy anatomii (zav. - prof. Ye.P.Mel'man) Ivano-Frankovskogo meditsinskogo instituta.

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ZELYAKH, G.E.

Evaluating the masses of globular clusters. Uch.zap.LGU no.190:52-58 '57. (MLRA 10:7)

(Stars--Clusters)

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ZELYAK, V.L.

Distribution and plasticity of intraorganic arteries in the esophagus of dogs. Dop. AN URSR no. 6:814-817 '64. (MIRA 17:9)

1. Ivano-Frankovskiy gosudarstvennyy meditsinskiy institut. Predstavleno akademikom AN UkrSSR V.G.Kas'yanenko [Kas'ianenko, V.H.].

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ZELYaKOVA, D. I., Cand Med Sci — (diss) "Reaction of an organ affected with polonium to the action of arsenic," Moscow, 1960, 13 pp (Academy of Medical Sciences USSR)

(KL, 38-60, 110)

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ZELYAKOV, N. V.
A. M. STEFANOVSKII, CR 3, 21-4, 1935

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

ZELYAKOVA, D.I.

Prophylactic effect of sodium arsenate in polonium poisoning. Radiobiologiia 1 no.2:288-292 '61. (MIRA 14:7)
(POLONIUM—PHYSIOLOGICAL EFFECT) (SODIUM ARSENATES)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

ZELYAKOVA, D.I. (Moskva)

Interaction of arsenic and polonium compounds. Farm. i toks. 28 no.1:95 Ja-F '65. (MIRA 18:12)

1. Submitted September 5, 1963.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

ZELYANKEVICH, V.M.

Their school is their home. Rab.i sial. 37 no.11:14-15 N '61. (MIRA 14:10)

1. Direktor Pruzhanskoy shkoly-internata.
(Pruzhany District--Boarding schools)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

18

ca

The dependence of the structures of a catalyst upon the condition of its reduction. N. V. Zelyanov, A. M. Stefanovskiĭ and B. S. Tatarskiĭ. *Sotsialist. Rekonstruktsiya Nauka* **1936**, No. 2, 151.—The activity of an

NH_3 catalyst prepd. by the method of C_6H_6-O fusion depends upon the reduction temp. With increase of this temp., the cryst. surface becomes more regular. During the reduction, rebuilding of the catalyst lattice and reduction of the size of the crystals to about 0.001 take place. The activity is decreased mainly as a result of changing the surface of the catalyst in connection with the increased regularity of the crystal lattice. B. V. Shvartzberg

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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6

Crystallohydrates of aluminum fluoride. V. S. Yatlov and A. I. Zelvanskaya. *J. Gen. Chem.* (U. S. S. R.) 7, 1787-90(1937).—Measurements of vapor pressure over AlF_3, contg. various amts. of H_2O of crystn. (from 3.18 to 0.40 mol. per mol. of AlF_3), showed that in addn. to $AlF_3.9H_2O$, which is stable at temps. up to 20°, there exist only the hydrates $AlF_3.3H_2O$ and $AlF_3.0.5H_2O$. The existence of $AlF_3.3.5H_2O$ and $AlF_3.H_2O$, described in the literature, could not be confirmed. S. L. Madorsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

ZELYANSKAYA, A. I., RYSS, I. G. and SHUTOVA, V. M.

"Viscosity of Solutions of Alkali Chromates." Zhur. Prikl. Khim., 12, 1939.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

ZELYANSKAYA, A. I., RYSS, I. G., and ZAYARNYY, A. E.

"Preparation of Crystallized Chromic Anhydride from Calcium Chromate."
Zhur. Prik. Khim., 14, 46-61, 1941.

A boiling mixt. of 456 g./1. Na CrO , 29.6 g./1. Na SO and traces of free alkali was treated with an equiv. quantity of a soln. contg. CaCl 33, KCl 2.64, and KClO 0.75%. The filtered and washed CaCrO was decompd. with H SO and the soln. of CrO obtained was filtered and concd. to about 66%. Yield of CrO was 97%-98%. The corrosion resistance of materials to be used as evaporators, reactors, etc., was found to be (loss in g./sq. m./hr. on exposure to process conditions for 0-2 and 2-4 hrs., resp.): Gray cast iron (C 3.39, Si 2.94, Mn 0.55, P 0.217 and S 0.06%) 6.58 and 2.65; boiler blate of the Chusovo mills (C 0.172, Mn 0.34, P 0.032, S 0.042% and Sitraces) 1.77 and 3.23; iron of the Armco type (C 0.025, Mn 0.035, S 0.025 and P 0.009%) 32.6 and 15.84; sheet aluminum 103.0 and 2.42. Rolled lead (Bi 0.004, Cu 0.005, Fe 0.003 and Sb 0.011%) in 3 hrs lost 259.6

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

11

11

THE POLAROGRAPHIC DETERMINATION OF COBALT IN TH PRESENCE OF NICKEL. THE VATALYTIC EVOLUTION OF HYDROGEN IN THE PRESENCE OF COMPLEXES OF COBALT WITH DIMETHYLGLYOXIME. A. G. STROMBERG AND A. I. ZELYANSKAYA (ZHUR. OBSHCH. KHIM., 1945, 15, (4/5), 303-317)-(In Russian) A new method has been worked out for the polarographic determination of Co in the presence of Ni. It depends on the fact that dimethylglyoxime gives an ins oluble complex with Ni, while forming a complex compound with Co, which remains in solution and can be determined polarographically. The naccessarru conditions for the determination of Co in the presence of Ni, Cu, Zn, and Fe have been examined.

N.A.

Chem. Inst. AS, Sverdlovsk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

ZELYANSKAYA, A. I.

Mbr., Inst. Chemistry & Metallurgy; Ural Affil., Acad. Sci., -1944-c49-.

"Polarographic Determination of Cobalt in the Presence of Nickel. Catalytic Evolution of Hydrogen in the Presence of Complex Compounds of Cobalt with Dimethyl-glioxym," Zhur. Obshch. Khim., 15, Nos. 4-5, 1945;

"Study of the Solubility of Dimethylglyoxime in Ammonia and Alcohol Solutions with the Aid of Amperometric Titration," Zhur. Analit. Khim., 4, No. 5, 1949.

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PA149T20

USSR/Chemistry - Indicators
Analysis, Quantitative

Sep/Oct 49

"Study of the Solubility of Dimethylglyoxime in Ammonia and Alcohol Solutions With the Aid of Amperometric Titration," A. G. Stromberg, A. I. Zelyanskaya, Inst of Chem and Metal, Ural Affiliate, Acad Sci USSR, $5\frac{1}{2}$ pp

"Zhur Anal Khim" Vol IV, No 5 p. 286-291

In the instance of dimethylglyoxime, expediency of using amperometric titration for determining solubilities of slightly soluble organic compounds is shown. Solubility of this compound in aqueous

[redacted] 149T20

USSR/Chemistry - Indicators (Contd) Sep/Oct 49

solutions at 25° C in relation to composition of solution was studied with: (1) ammonia solutions with an ammonia concentration interval of 0.01-1.0 M and 1.0-10.0 M, (2) ammonium ion-ammonia solutions with a constant ammonia concentration and an ammonium chloride concentration interval of 0.1-1.0 M, and (3) alcohol solutions with an alcohol concentration interval of zero-16.4 M (0.0-96.0 vol %). Submitted 24 Apr 48.

[redacted] 149T20

ZELYANSKAYA, A.I.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

STROMBERG, A.G.; ZELYANSKAYA, A.I.

Amalgam polarography. Trudy Kom. anal. khim. 4:5-28 '52.
(Amalgams) (Polarography) (MIRA 11:6)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

SOV/137-59-1-2171

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 285 (USSR)

AUTHORS: Zelyanskaya, A. I., Bykov, I. Ye., Gorshkova, L. S.

TITLE: On the Separation of Selenium and Tellurium by a Cationite (K voprosu o razdelenii selena i tellura kationitom)

PERIODICAL: Tr. In-ta metallurgii, Ural'skiy fil. AN SSSR, 1957, Nr 1, pp 151-154

ABSTRACT: For a quantitative separation of Se from Te, as well as from Ce, Fe and Zn, pH 1.4 solutions are passed through the "espatig" [transliterated] KU-1 cationite. Te, Cu, Fe, Pb, and Zn are completely absorbed by the cationite. Te is then extracted with a solution of NH_4OH (1:2), and the cationite is washed with H_2O and 5% HCl to a neutral reaction. It is shown that Se can be quantitatively separated from Cu, Fe, and Zn. The presence of Pb lowers the results. Hydrochloric acid solutions and ammoniacal solution containing sodium versenate are suitable for separating Se and Te from Cu, Fe, and Zn. Se passes through into the filtrate in all cases.

V. P.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

ZELYANSKAYA, A.I.; BYKOV, I.Ye.; GORSHKOVA, L.S.

Polarographic determination of tetravalent selenium and tellurium when both are present. Trudy Inst. met. UFAN SSSR no.1:155-160 '57. (MIRA 11:9)

(Selenium) (Tellurium) (Polarography)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

SOV/137-58-11-23831

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 280 (USSR)

AUTHORS: Zelyanskaya, A. I., Bykov, I. Ye., Gorshkova, L. S.

TITLE: Effect of Heavy Metals on the Polarographic Waves of Selenium and Tellurium (Vliyaniye tyazhelykh metallov na polyarograficheskiye volny selena i tellura)

PERIODICAL: Tr. In-ta metallurgii. Ural'skiy fil. AN SSSR, 1957, Nr 1, pp 161-169

ABSTRACT: The authors investigate the effect of some heavy metals on the polarographic waves of Se and Te in the NH_3NH_4Cl solution. The Cu wave precedes the Te wave, and two separate waves appear on the polarogram, but when the ratio Cu:Te>1 the Te wave is appreciably lowered and a preliminary separation of Cu is necessary. Zn, which is reduced at a more negative potential, does not affect the Te wave; however, at a Te:Zn > 1 ratio Te lowers the Zn wave. Pb adsorbs Te when it precipitates; when Na versenate B is added, Pb is reduced at a more negative potential than Te, whereas the addition of gelatine displaces the $E_{1/2}$ of Pb to -1.3 v. The presence of 0.05% gelatine completely suppresses the Pb wave, after which the determination

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SOV/137-58-11-23831

Effect of Heavy Metals on the Polarographic Waves of Selenium and Tellurium

of Te proceeds without impediments. The impeding effect of Fe is eliminated by the addition of 0.1 mole/liter of tartaric acid and 0.1% gelatin; in this case Fe is reduced at a more negative potential than Te and has no effect on the magnitude of its wave. Determination of Se is impeded by the presence of Cu, Pb, Cd, and Fe. When the molar concentration ratio Te:Se > 1 Te also impedes the determination. The effect of Zn, Ni, and Co^{2+} is eliminated by the addition of Na versenate B.

N. B.

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ZELYANSKAYA, A. I.

Collection of Studies in the (XXXXX) Metallurgy of Heavy 925
Non-Ferrous Metals, Sverdlovsk, 1957, 168 (Its Trudy, vyp 1,)(AS USSR, Ural Affil,)

Zelyanskaya, A.I.; Bykov, I.Ye.; and Gorshkova, L.S. The Separation of Selenium and Tellurium by a Cationite 151

Zelyanskaya, A.I.; Bykov, I.Ye.; and Gorshkova, L.S. Polarographic Determination of Tetravalent Selenium and Tellurium When Jointly Present 155

Zelyanskaya, A.I.; Bykov, I.Ye.; and Gorshkova, L.S. Effect of Heavy Metals on the Polarographic Waves of Selenium and Tellurium 161

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

Zelyanskaya, A.I.

B-12

USSR/Physical Chemistry - Electrochemistry.

Abs Jour: Referat. Zhurnal Khimiya, No 2, 1958, 3980.

Author : I.Ye. Bykov, A.I. Zelyanskaya.
Inst : Academy of Sciences of USSR.
Title : Influence of Tellurium on Polarographic Wave of Selenium.

Orig Pub: Izv. vost. fil. AN SSSR, 1957, No 2, 47-51.

Abstract: The presence of SeO_3^{2-} does not influence the height of the TeO_3^{2-} wave on the background of 0.5 M NH_4Cl + 0.5 M NH_4OH. The height of the SeO_3^{2-} wave does not change up to Te : Se = 1. The SeO_3^{2-} wave becomes lower at a higher relative content of TeO_3^{2-}. In the author's opinion, Se^{2-} ions forming at the SeO_3^{2-} reduction diffuse into the solution and react with TeO_3^{2-} as follows: $2Se^{2-} + TeO_3^{2-} + 6H^+ \rightarrow 2Se + Te + 3H_2O$. In order to verify this assumption, a SeO_3^{2-} solution was electrolyzed on a carbon cathode, after which an anode-cathode wave was revealed on the

Card : 1/2

..., No 2, 1958, 3980.

B-12

polarogram. The SeO_3^{2-} wave remained unchanged after the addition of this solution to another containing SeO_3^{2-} and TeO_3^{2-}, but the TeO_3^{2-} wave disappeared at the excess of Se^{2-}; the anode Se^{2-} wave decreased correspondingly. See also RZhKhim, 1955, 29202.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

137-58-4-8652

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 333 (USSR)

AUTHORS: Zelyanskaya, A. I., Bausova, N. V.

TITLE: Separation of Gallium from Zinc, Copper, Cobalt, Nickel, and Iron by Ion Exchange (Otdeleniye galliya ot tsinka, medi, kobal'ta, nikelya, i zheleza metodom ionnogo obmena)

PERIODICAL: Izv. vost. fil. AN SSSR, 1957, Nr 7, pp 51-53

ABSTRACT: Polarographic determination of Ga in a passive electrolyte of the following composition: 0.1 M Na salicylate, 0.1 M NaCl, pH 2.5-3.8 is inhibited by Co, Ni, Zn, and large amounts of Cu. SBS cationite was used in the Na form in columns of 1 cm diameter, 50 cm high, to remove the inhibiting impurities. The resin, of 0.25-0.5 mm grain size, was charged to a height of 25 cm. A 100-cc solution containing 15 cc concentrated NH_4OH and 10 cc 2N. NaOH was transmitted through the resin at a rate of 5 cc/min, as a result of which the Ga remained in the filtrate in its entirety, and the Ni, Co, Zn, and Cu underwent quantitative absorption by the cationite. The resin was washed by a 100-cc solution containing 10 cc concentrated NH_4OH and 5 cc 2N. NaOH. The filtrate and the wash waters were evaporated down to a

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137-58-4-8652

Separation of Gallium (cont.)

volume of 25 cc and were neutralized by 6N HCl (methylorange test), and the Ga was determined polarographically. Extraction of the Ga in the filtrate attained 98-100% when the solution contained 0.5-5.0 mg.

Z.G.

1. Gallium--Determination 2. Gallium--Separation 3. Gallium--Polarographic analysis 4. Ion exchange resins--Applications

Card 2/2

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

SOV/137-58-11-23830

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 280 (USSR)

AUTHORS: Zelyanskaya, A. I., Bykov, I. Ye., Gorshkova, L. S.

TITLE: Polarographic Determination of Quadrivalent Selenium and Tellurium When Both are Present (Polyarograficheskoye opredeleniye chetyrekh-valentnykh selena i tellura pri sovmestnom ikh prisutstvii)

PERIODICAL: Tr. In-ta metallurgii. Ural'skiy fil. AN SSSR, 1958, Nr 1, pp 155-160

ABSTRACT: It is established that for the joint polarographic determination of Se and Te a basic electrolyte containing (in mole/liter) NH_4Cl 0.75, NH_4OH 0.25, Na_2SO_3 0.1 is the most suitable. In order to eliminate the maxima, the polarographic analysis is performed in the presence of 0.002% gelatine: $E_{1/2}$ of Te = - 0.9 v and $E_{1/2}$ of Se = - 1.5 v (saturated control electrolyte). An increase in the concentration of gelatine causes a displacement of the Se wave in the negative sense, and its determination becomes impossible. Se can be determined polarographically at concentrations of 0.05-2 mmole/liter; the molar concentration of Te should not be higher than the Se concentration lest the Se wave be lowered. Nitrates and heavy metals should be absent. To

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Polarigraphic Determination of Quadrivalent Selenium and Tellurium (cont.)

dissolve Se and Te the precipitate of elemental Se and Te is obtained by any method and to this, together with the filtrate, 5 cc of freshly prepared solution of 25 mg $KClO_3$ in HCl (1:1) are added. The mixture is stirred, heated slightly, and upon dissolution neutralized with NH_4OH to methyl orange. The solution together with the paper, is transferred into a 50-cc flask, basic electrolyte is added to the mark, and the mixture is analyzed polarographically. The method was verified on specimens of dust and cake. Two-gram samples were used for the analysis.

N. G.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

SOV/137-59-2-4765

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 2, p 343 (USSR)

AUTHORS: Zelyanskaya, A. I., Bausova, N. V., Kukalo, L. Ya.

TITLE: Study of Polarographic Properties of Gallium and Indium (Izucheniye polyarograficheskikh svoystv galliya i indiya)

PERIODICAL: Tr. In-ta metallurgii. Ural'skiy fil. AN SSSR, 1958, Nr 2, pp 263-274

ABSTRACT: Investigations were carried out for establishing the optimum conditions for polarographic determination of Ga and In. It was established that in acid salicylate solutions (0.1 M Na salicylate and 0.1 M NaCl with a pH of 2.5 - 3.8) Ga forms a well defined wave with $E_{1/2}$ = -0.99 v (in saturated standard electrolyte); introduction of gelatin has a negative effect. The electrode reaction corresponds to a three-electron reduction and proceeds irreversibly. With an increase of the salicylate content in the solution $E_{1/2}$ shifts in the negative sense. The polarographic determination is not impeded by Al, As^{5+}, Mn^{7+}, and small amounts of Cu, Bi, Sb, Fe, In, Cd, Pb, and Tl. Zn, Ni, Co, Mo, and Sn should be first removed. In is read polarographically against the background of 3N HCl in the presence of 0.01% solution

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Study of Polarographic Properties of Gallium and Indium

of gelatin; $E_{1/2} = -0.78$ v. An increase in gelatin concentration decreases sharply the intensity of the diffusion current.

N. G.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

SOV/137-59-2-4837

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 2, p 353 (USSR)

AUTHORS: Bykov, I. Ye., Zelyanskaya, A. I., Gorshkova, L. S.

TITLE: Polarographic Determination of Tetravalent Selenium and Tellurium (Polyarografiya chetyrekhvalentnykh selena i tellura)

PERIODICAL: Tr. In-ta metallurgii, Ural'skiy fil. AN SSSR, 1958, Nr 2, pp 275-279

ABSTRACT: The authors examined the parameters of the polarographic determination of Se and Te. In acid solutions their reduction proceeds with formation of several waves, whereas in strong alkaline solutions the Se-wave disappears. Polarographic determination of Se and Te when both are present is carried out in an electrolyte of the following composition (in mole/liter): NH_4Cl 0.5, NH_4OH 0.5, Na_2SO_3 0.1, gelatin 0.002%, at a pH ~9. With a concentration of gelatin $\geq$ 0.01% the Se wave blends with the terminal ascending branch of the polarogram. In the presence of a number of heavy metals a decrease of the diffusion current of Se and Te is observed; moreover, the Se wave decreases in the presence of Te. However, in small amounts of the elements the dependence of the Se wave on Te is imperceptible. The authors developed a technique

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SOV/137-59-2-4837

Polarographic Determination of Tetravalent Selenium and Tellurium

for determination of Te in the presence of Fe (in a tartaric-acid solution), or Te in the presence of Pb, of Se in the presence of Zn (in an E.D.T.A. solution), and of Te in the presence of Cu (alcaline cyanide solution). In order to determine Se and Te in products of complex composition it is necessary to separate them from other elements first.

N. G.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

SOV/137-58-11-23803

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 275 (USSR)

AUTHORS: Zelyanskaya, A. I., Bausova, N. V.

TITLE: Polarographic Investigation of the Gallium Salicylate Complex (Polyarograficheskoye issledovaniye salitsilatnogo kompleksa galliya)

PERIODICAL: Izv. Sibirsk. otd. AN SSSR, 1958, Nr 3, pp 52-59

ABSTRACT: The authors established the feasibility of the polarographic determination of Ga against a background of 0.1M solution of Na salicylate and 0.1M solution of NaCl at a pH of 2.5-3.8; the addition of gelatin produces a negative effect. The stability of the Ga salicylate complex is comparatively low because the constant of instability $K = 1.93 \cdot 10^{-6}$. The potential of the half wave of Ga = -0.988 v (saturated electrolyte). The electrode reaction is irreversible and corresponds to a 3-electron reduction. W, Al, Mn^{7+}, As^{5+}, alkaline, and alkaline-earth metals do not impede the reaction; neither does Fe at a ratio Ga:Fe $\leq$1:35. Cu, In, Tl, Cd, Pb, and Sn are reduced at more positive potentials and in small amounts have no effect. Mn^{2+} is reduced close to Ga, therefore it should be oxidized to Mn^{7+}. Under these conditions Bi

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Polarographic Investigation of the Gallium Salicylate Complex (cont.)

is hydrolyzed; however, when its content is $\leqslant 10$ mg, no adsorption of Ga is observed. Sn is hydrolyzed causing an adsorption of Ga; therefore, its preliminary removal is necessary. The presence of Mo impairs the polarographic wave of Ga. Zn, Ni, and Co impede the determination of Ga owing to the proximity of their reduction potentials.

N. G.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

STASHKOVA, N.V.; ZELYANSKAYA, A.I.

Polarographic determination of germanium. Izv.Sib.otd. AN SSSR no.1:59-66 '59. (MIRA 12:4)

1. Ural'skiy filial AN SSSR.
(Germanium--Analysis) (Polarography)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

BELYANSKAYA, A. I.

PHASE I BOOK EXPLOITATION SOV/4613

Akademiya nauk SSSR. Ural'skiy filial. Institut metallurgii

Voprosy kontrolya i kompleksnogo ispol'zovaniya syr'ya v metallurgii (Problems of Control and Complete Utilization of Raw Materials in Metallurgy) Sverdlovsk, 1960. 194 p. (Series: Its: Trudy, vyp. 5) Errata slip inserted. 1,000 copies printed.

Resp. Eds.: M. I. Kochnev, and V. P. Chernobrovkin, Candidates of Technical Sciences. Ed. of Publishing House: I. M. Dasin; Tech. Eds.: L. A. Irnodenova, and N. F. Seredkina.

PURPOSE: This collection of articles is intended for technical personnel of metallurgical plants and for members of scientific research institutes.

COVERAGE: The collection contains articles discussing a variety of problems pertaining to ferrous and nonferrous metallurgy. A number of articles describe new methods for investigating the properties of alloys and oxides and review changes which these properties undergo as a result of the effect of temperature and other factors. Findings of s' dies are summarized in numerous articles and processes to be used fo. manufacturing ferroalloys and naturally-alloyed steels are suggested. Characteristics of various metal compounds are given and measures for the most efficient utilization of ores are indicated. Some of the articles are devoted to the study of problems of manufacturing ferrous, nonferrous, and rare metals. The selection of topics was made on the basis of the need for material relating to the improvement of the quality control of alloys and the manufacturing processes employed to produce them. No personalities are mentioned. Each article is accompanied by references, most of which are Soviet.

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

ZELYANSKAYA, A.I., GORSHKOVA, L.S,

Determination of small amounts of selenium in anode copper.
Trudy Inst.met.UFAN SSSR no.5:137-139 '60. (MIRA 13:8)
(Copper--Analysis) (Selenium--Analysis)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

ZELYANSKAYA, A.I.; GORSHKOVA, L.S.

Polarographic method of determining tellurium in copper-bearing and leaded compounds. Trudy Inst.met.UFAN SSSR no.5:141-144 '60. (MIRA 13:8)
(Polarography) (Tellurium)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

STASHKOVA, N.V.; ZELYANSKAYA, A.I.

Mechanism of the reduction of tetravalent germanium on dropping mercury electrodes. Izv.Sib.otd.AN SSSR no.1:72-81 '61. (MIRA 14:2)

1. Ural'skiy filial AN SSSR.
(Germanium) (Electrodes, Dropping mercury)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

ZELYANSKAYA, A.I.; KUKALO, L.Ye.

Polarographic reduction of gallium in a pyrocatechol solution. Zhur.anal.khim. 18 no.6:726-728 Je '63. (MIRA 16:9)

1. Institute of Metallurgy, Ural Branch of the Academy of Sciences of the U.S.S.R., Sverdlovsk.
(Gallium compounds) (Polarography) (Pyrocatechol)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

ZELYANSKAYA, A.I.; STASHKOVA, N.V.

Amperometric titration of germanium with a pyrocatechol solution. Zhur. anal. khim. 16 no. 4:430-432 Jl-Ag '61. (MIRA 14:7)

1. Institute of Metallurgy, Academy of Sciences U.S.S.R., Ural Branch, Sverdlovsk.
(Germanium—Analysis) (Pyrocatechol)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

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Extraction of bromine from sylvinite. Ya. Vil'nyanskii and V. Zelyanskii. *Kali* 1935, No. 2, 12-17.—Despite the low content of Br (0.05%) in Solikamsk sylvinite, it can be extd. economically. The best results are obtained with a mother liquor concd. to 0.08% Br before extn. with Cl_2. S. L. Madorsky

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3RD AND 4TH ORDERS

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CA

The limit of accumulation of bromine in sylvinite solution. E. Ya. Vil'nyanskii and V. Zelyanskii. *Kalii* (U. S. S. R.) 1936, No. 3, 32-4.—A discussion.

A. Pestoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

CA 15

The limit of accumulation of bromine in sylvinite solution. E. Ya. Vil'yanskii and V. Zelyanskii. *Kalii* (U. S. S. R.) 1936, No. 8, 32-4.—A discussion.

A. Pestoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

eb

18

The cooling of sylvinite solutions in vacuo. Ya. B. Vil'nyanskii and V. Zelyanskii. *Kalii* (U. S. S. R.) 1935, No. 7, 16-22.—A description of different app. and their operation. A. Pestoff

COMMON ELEMENTS

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ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

MEL'NIKOV, Nikolay Prokof'yevich, doktor tekhn. nauk, prof.;
ZELYATROV, V.N., inzh., nauchn. red.

[Development of metal constructions] Razvitie metallicheskikh konstruktsii. Moskva, Stroiizdat, 1965. 278 p.
(MIRA 18:7)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

MILLER, Viktor Yakovlevich, inzh.; KORCHAGIN, Vladimir Aleksandrovich, inzh.; TOLOKONNIKOV, Vladimir Gerasimovich, inzh., MUKHANOV, K.K., kand. tekhn. nauk, retsenzent; KUZNETSOV, V.V., inzh., retsenzent; ZELYATROV, V.N., inzh., nauchn. red.

[Steel structures in a blast furnace - gas purification complex] Stal'nye konstruktsii kompleksa domennoi pechi i gazoochistki. Moskva, Stroiizdat, 1965. 278 p.
(MIRA 18:4)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

STRELETSKIY, Nikolay Stanislavovich; ZELYATROV, V.N., nauchnyy red.; BROUDE, B.M., doktor tekhn.nauk; BORODINA, I.S., red.izd-va; GILENSON, P.G., tekhn.red.

[Materials for a course in steel construction elements] Materialy k kursu stal'nykh konstruktsii. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam. No.2., pt.1. [Performance of compressed columns] Rabota szhatykh stoek. 1959. 281 p. (MIRA 12:10)

(Columns, Iron and steel)

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ZELYATROV, V.N.; MEL'NIKOV, N.P.; ZUBKOVA, M.S., red.; SHEVCHENKO, T.N., tekhn. red.

[Selection of steel for metal construction elements; a manual for designers] Vybor stali dlia stroitel'nykh metallicheskikh konstruktsii; posobie dlia proektirovshchikov. Moskva, Stroiizdat, 1964. 97 p. (MIRA 17:3)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

SHESTAK, Georgiy Andrianovich, kand. tekhn. nauk; GENIYEV, A.N., prof., retsenzent; ZELYATOROV, V.N., inzh., nauchn. red.

[Designing steel structures for one-story industrial buildings] Proektirovanie stal'nykh konstruktsii odnoetazhnogo promyshlennogo zdaniia. Moskva, Stroiizdat, 1964. 169 p. (MIRA 17:4)

1. Kafedra metallicheskikh konstruktsiy Leningradskogo inzhenerno-stroitel'nogo instituta (for Geniyev).

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ZELYATROV, V.N.; MEL'NIKOV, N.P.; ZUBKOVA, M.S., red.; SHEVCHENKO, T.N., tekhn. red.

[Selection of steel for metal construction elements; a manual for designers] Vybor stali dlia stroitel'nykh metallicheskikh konstruktsii; posobie dlia proektirovshchikov. Moskva, Stroiizdat, 1964. 97 p. (MIRA 17:3)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

ZELYATROV, V.N.

ZHUDIN, Nikolay Dmitriyevich; VAKHURKIN, V.M., inzhener, retsenzent; ZELYATROV, V.N., inzhener, nauchnyy redaktor; KOTIK, B.A., redaktor ~~Izdatel'stva~~; PERSON, M.N., tekhnicheskiy redaktor.

[Steel structures] Stal'nye konstruktsii. Moskva, Gos.izd-vo lit-ry po stroit.i arkhit., 1957. 334 p. (MIRA 10:11)
(Building, Iron and steel)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

ZELYATROV, V.N., nauchnyy redaktor; YEGOROVA, N.O., redaktor izdatel'stva;
EL'KINA, E.M., tekhnicheskiy redaktor

[Studies; steel structures] Issledovaniia; stal'nye konstruktsii.
Moskva, Gos.izd-vo lit-ry po stroit. i arkhit., 1957. 155 p.
(MIRA 10:7)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut po
stroitel'stvu
(Steel, Structural)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

PODLIPSKIY, Aleksandr Alekseyevich; ZELYATROV, V.N., nauchnyy redaktor; BERDICHEVSKIY, G.I., kandidat ~~tekhnicheskikh~~ nauk, redaktor; TOKER, A.M., tekhnicheskiy redaktor

[Steel trusses for roofs] Stal'nye prutkovye konstruktsii pokrytii. Moskva, Gos. izd-vo lit-ry po stroit. i arkhitekture, 1954. 141 p.
(Roofs) (Trusses) (MLRA 8:3)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

BALDIN, V.A., kandidat tekhnicheskikh nauk, redaktor; ZELYATROV, V.N., nauchnyy redaktor

[Studies on steel structures] Issledovaniia po stal'nym konstruktsiiam. Pod red. V.A.Baldina. Moskva, Gos. izd-vo lit-ry po stroit. i arkhitekture, 1956. 210 p. (MLRA 9:11)

1. Moscow. TSentral'nyy nauchno-issledovatel'skiy institut promyshlennykh sooruzheniy.
(Steel, Structural)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

LESSIG, Yevgeniy Nikolayevich; LILEYEV, Aleksandr Fedorovich; SOKOLOV, Aleksandr Georgiyevich; ZELYATROV, V.N., nauchnyy redaktor; ROSTOVTSEVA, M.P., redaktor izdatel'stva; TOKER, A.M., tekhnicheskiy redaktor

[Sheet steel structural elements] Stal'nye listovye konstruktsii. Moskva, Gos. izd-vo lit-ry po stroit. i arkhitekture, 1956. 479 p.
(Sheet steel) (MLRA 9:12)

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

ZELYAYEV, A.F.; SHUMOV, K.M.; ALEKSEYEV, Ye.N.

Diaphragm tensometric manometer. Zav.lab.22 no.11:1368-1369 '56.
(Manometer) (MLRA 10:2)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9"

"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

PROCESSES AND PROPERTIES INDEX

CA

11K

The direct action of chemical stimuli upon the fundal part of the stomach. G. P. Zel'yoni. *Bull. biol. méd. exptl. U. R. S. S.* 9, 425-7(1940)(in English).—The administration of beet juice to dogs with gastric fistulas has a strong stimulating effect on gastric secretion when the juice is given in dil. soln. Concd. juice has a lesser effect. The administration of the juice to dogs with Pavlov pouches inhibits secretion at all concns. Na oleate and NaCl in 5% concn. completely inhibit secretion of the Pavlov pouch when introduced into the pouch, but secretion is incomplete on introduction into the stomach, possibly because of stimulation of the pylorus. Secretion is enhanced by 2% NaCl while no change is observed with 3% NaCl. Administration of 80-100 cc. of sunflower oil into the pouch completely inhibited gastric secretion but this was not observed when 25-30 cc. was used. In expts. with the Heidenhain pouch no changes were observed. Conclusion: Certain chem. stimuli applied to the fundal part of the stomach, although not eliciting gastric secretion, regulate the secretion called forth by other means from other parts of the organism. S. A. Karjala

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

ZELYAYEV, A.F.

USSR/Processes and Equipment for Chemical Industries - Control and Measuring Devices. Automatic Regulation. K-2

Abs Jour : Referat Zhur - Khimiya, No 9, 1957, 33322

Author : Zelyayev, A.F., Shumov, K.M., Alekseyev, Ye.N.
Inst :
Title : Tensimetric Diaphragm Manometer

Orig Pub : Zavod. laboratoriya, 1956, 22, No 11, 1368-1369

Abstract : In the tensimetric diaphragm manometer developed by the authors the pressure that is being determined distorts a circular steel diaphragm and a wire-resistor primary element fastened thereon. Change in ohmic resistance of the primary element is measured by means of a 4-branch bridge. The manometer consists of a cylindrical housing into which is threaded a cover with an aperture which provides an outlet to the atmosphere. The diaphragm with the primary element fastened thereto is clamped between housing and cover. On a plate that is located on the cover is fastened a

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USSR/Processes and Equipment for Chemical Industries - Control and Measuring Devices. Automatic Regulation. K-2

Abs Jour : Ref Zhur - Khimiya, No 9, 1957, 33322

primary element which compensates the temperature distortion of the primary element of the diaphragm. Pressure from the system under study is admitted into a bottom chamber through a connection tube. The apparatus is suitable for measuring static and dynamic pressure and vacuum. With a relative distortion of the diaphragm not exceeding 0.2-025% the apparatus has a rectilinear response. In the experimental studies diaphragms 50 mm in diameter were used. Use of a diaphragm of larger diameter is disadvantageous since on increase of the diameter the frequency of the natural oscillations of diaphragms decreases. Diaphragms having a thickness from 0.1 to 7 mm were used to measure pressures from 0.004 to 900 kg/cm^2, respectively.

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L 19739-63 EWP(r)/BDS AFFTC/APGC EM
ACCESSION NR: AT3002160 S/2919/62/000/000/0142/0151

AUTHOR: Zelyukova, R. V.

B

TITLE: Vibration damping in link rods

SOURCE: Voprosy rasseyaniya energii pri kolebaniyakh uprugikh sistem; trudy nauchno-tekhnicheskogo soveshchaniya. Kiev, Gostekhizdat USSR, 1962, 142-151

TOPIC TAGS: vibration damping, link rod, logarithmic decrement, forced vibration

ABSTRACT: Experimental and analytical investigations were made to determine the damping capacities of two types of link rods, one having a clearance in the joint and the other with a metallized cover. Experiments were carried out on an apparatus of TsNIITMASh (Central Scientific Research Institute of Technology and Mechanical Engineering) specification. The damping characteristics were obtained on the assumption of a two-term, linear logarithmic decrement, thus

$$\delta(\xi_0) = \delta_0 + k\xi_0 \quad (1)$$

where δ_0, k - deforming capacity of rod in low and high deformation regions (0.1 kg/mm^2 and 10 kg/mm^2 or over) respectively; and ξ_0 - integrated magnitude depending on type and intensity of stress and type of rod under study. Some basic results

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ACCESSION NR: AT3002160

and conclusions drawn from the experiment are: the metallized cover type rod follows a linear damping law given by equation (1) above in the stress range 50-600 and 100-800 kg/cm^2 with a cover deposit of high carbon steel 1-2.5 mm thick. The parameter δ_0 increases by a factor of 2-5.8 and k increases by 7-11. Furthermore, both types of rods are found to be applicable in carrying vibrational loads under practical operating conditions. On the basis of the assumption that the hysteresis loop of the link rod with an external harmonic forcing function is elliptic in form, equations are derived for rod displacements both in free and forced vibrations. It is shown that the coupling between a large damping factor and the resonance amplitude induce an inherent stability in the vibrating system. Orig. art. has: 14 equations, 4 figures, and 1 table.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 10May63 ENCL: 00

SUB CODE: AP NO REF SOV: 008 OTHER: 001

Card 2/2

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"APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964410016-9

ZELYUKOVA, R.V.

Torsional vibrations of steel-wire rope taking into consideration mechanical hysteresis. Nauch. zap. Od. politekh. inst. 48:59-65 '62. (MIRA 17:5)

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